Sanitary Sewers

PROGRAM DESCRIPTION

Fairfax County provides sewer service to its citizens through a system of approximately 3,260 miles of sewer lines, 64 pumping stations, 53 metering stations, and one treatment plant owned and operated by the County. Additional treatment capacity is provided by contractual agreements with the District of Columbia Water and Sewer Authority, Alexandria Sanitation Authority (ASA), Arlington County, Prince William County Service Authority, and the Upper Occoquan Sewerage Authority (UOSA).

LINK TO THE COMPREHENSIVE PLAN

The Policy Plan for Fairfax County's Comprehensive Plan has established a number of objectives and policies in order to:

- ✓ Emphasize the need to maintain a system of conveyance and treatment facilities that is responsive and compatible with the land use and environmental goals of the County.
- ✓ Provide for public sewer in accord with the Board of Supervisor's approved sewer service area and the expansion of lines and plants consistent with other facility availability and land use development goals.

Source: 2003 Edition of the Comprehensive Plan, as amended

CURRENT PROGRAM INITIATIVES

During the CIP planning period, the County will provide both increased treatment capacity and improved effluent quality. Additional plant capacity will be required to serve projected residential and nonresidential growth. Stringent water quality standards require the greater treatment efficiency provided by advanced wastewater treatment.

Financing of the capital program for the sanitary sewerage system is derived from two sources: the sale of revenue bonds and current system revenues. While federal and state grants were extensively utilized to fund the construction programs of the 1970's and 1980's, the financial burden of future programs will fall heavily on the County due to scarcity of federal grant funds. The County has recently signed a grant agreement with the state of Virginia which provides funding for a fifty percent of the plant upgrade costs to remove nitrogen. Sewer revenue bonds that are issued are payable solely from the revenues of the Integrated Sewer System and are not general obligations of Fairfax County. These bonds are sometimes refinanced to take advantage of the lower interest rates.

Approximately 90 percent of the System's revenues are derived from charges to new and existing customers through availability fees and sewer service charges, respectively. New customers to the System are charged a one time availability fee per new connection for access to the System. Existing customer charges are based upon the annualized equivalent of actual water consumption during the winter quarter. Availability fees and sewer service charges are established by the Fairfax County Board of Supervisors. Since 1979 the Board has used the five year financial projection of available cash balances to determine the appropriate level of availability fees and sewer service charges. The available cash balance reflects the projected sources and uses of funds by new and existing customers. The

system allocates operating revenues and expenses, debt service and capital outlay between existing users and new users of the System. The remaining 10 percent of system revenues are derived primarily from sale of service to wholesale users such as Fairfax City, Herndon, Falls Church, Vienna or Ft. Belvoir.

Sewer revenue bonds were issued to provide funds for expanding treatment facilities at the Noman M. Cole, Jr. Pollution Control Plant and Fairfax County's share of expanding facilities at the District of Columbia's Blue Plains Wastewater Treatment Plant. The Noman M. Cole, Jr. Pollution Control Pant was expanded from 36 million gallons per day (MGD) to 54 MGD. The Blue Plains Wastewater Treatment Facility was expanded from 309 MGD to 370 MGD. Fairfax County's allotment of Blue Plains Capacity increased from 16.026 MGD to 31 MGD.

Looking to the future, a balance must be struck between the three major issues facing the integrated sewerage system: (1) the necessity of maintaining high levels of water quality (including meeting more stringent nutrient limits); (2) keeping pace with County growth and (3) achieving these goals in terms of both financial and other resources. To a similar end, consideration must be given to inspecting, repairing and maintaining the system at acceptable service levels. In most instances, annual expenditures for system upkeep will enable the County to avoid costly, major rehabilitation in the future.

Noman M. Cole, Jr. Pollution Control Plant

The Noman M. Cole, Jr., Pollution Control Plant (NCPCP) serves the Accotink, Pohick, Long Branch, Little Hunting, and Dogue Creek drainage basins. In addition to flows originating within the County, the plant also treats sewage from the City of Fairfax, Fort Belvoir, and part of the Town of Vienna. The Noman M. Cole, Jr. Plant was put on line in 1970 and had an initial design capacity of eighteen million gallons daily (MGD), which was subsequently increased to a rating of 36 MGD of advanced treatment in 1978, and again increased to a rating of 54 MGD in 1995.

In order to meet the anticipated needs for sanitary sewage service in sheds that contribute to the NCPCP as well as meet new water quality standards for nitrogen control, a program for expansion of the plant to 67 MGD was initiated in 1992. Construction began in 1997 and is expected to be completed in 2004. The Noman M. Cole, Jr. Pollution Control Plant will be capable of handling anticipated flows from its contributory sheds through 2015.

Alexandria Sanitation Authority

The Cameron Run and Belle Haven watersheds and the City of Falls Church are served by the Alexandria treatment plant. The Alexandria plant is owned and operated by the Alexandria Sanitation Authority (ASA). Sixty percent of its capacity is contractually allocated to Fairfax County. The ASA plant has been expanded and upgraded to provide 54 MGD of advanced secondary treatment capacity. Fairfax County is allotted 32.4 MGD of capacity. By 2005, flows from Cameron Run, Belle Haven and Falls Church should approach 23 MGD which will leave Fairfax County with unused capacity of several years beyond that time. By reactivating the Braddock Road and Keene Mill Road pumping stations, the County has the capability to divert flow from the Accotink watershed to ASA. These diversions will increase the County's wastewater management alternatives in the entire eastern portion of the County by off loading the Noman M. Cole, Jr., Pollution Control Plant and Blue Plains Treatment Plant to the ASA plant. The ASA plant is currently under going a major rehabilitation project to meet new water quality standards for nitrogen removal, which should be completed by the end of 2005.

Blue Plains

With a current capacity of 370 MGD, the District of Columbia Water and Sewer Authority (DCWASA) treatment plant at Blue Plains is the largest plant in the area. In addition to the District of Columbia, it treats flows from Maryland, Virginia, and several federal installations. Wastewater flows originating in the Sugarland Run, Horsepen Creek, Difficult Run, Scotts Run, Dead Run, Turkey Run, and Pimmit Run watersheds are treated at Blue Plains. Fairfax County is presently allocated 31 MGD at the plant. Blue Plains will be undergoing a major renovation over the next several years in the chemical additions and sludge disposal systems.

Arlington County Pollution Control Plant

The Arlington County pollution control plant serves that portion of Fairfax County within the Four Mile Run watershed. The plant has been expanded and upgraded to 30 MGD of advanced secondary capacity. Over the next six years, the Plant will be upgraded again to comply with the water quality standards for nitrogen removal, and expanded to 40 MGD, which should be completed by the end of 2010. Arlington County now handles approximately 2.4 MGD for Fairfax County at the Arlington plant. Projections for 2005 indicate that this level of service will not increase significantly. The total capacity reserved for Fairfax County is 3.0 MGD, therefore the County will only be responsible for the upgrade costs and not the cost of expanding the plant from 30 MGD to 40 MGD.

Upper Occoquan Sewage Treatment Authority

The southwestern part of Fairfax County is served by a regional plant owned and operated by the Upper Occoquan Sewage Authority. This plant became operational in 1978 and replaced five small treatment plants in Fairfax County (Greenbriar, Big Rocky Run, Flatlick Run, Upper Cub Run, and Middle Cub Run) and six in Price William County. This plant was originally certified to operate at 15 MGD. Fairfax County's initial share of the plant was 30.83 percent but during 1978 the County purchased additional capacity from Manassas Park which brought the County's share of plant capacity up to 36.33 percent. The County's capacity in the plant was 5.45 MGD before it increased to 9.915 MGD with the expansion of the UOSA plant to 27 MGD in FY 1989. Several expansion efforts have occurred bringing the capacity to 54 MGD and raising Fairfax County's capacity to 27.6 MGD to meet capacity demands beyond the year 2015.

Fairfax County has completed the program of plant expansion and upgrading that was begun in the early 1970's. This program was directed at pollution problems in the Potomac River and the Occoquan Reservoir and was comprised of four major elements:

Creation of a single treatment complex at the Noman M. Cole, Jr. plant to treat flows from the Accotink, Pohick, Dogue, and Little Hunting Creek Watersheds and Fort Belvoir;

Installation of pumping facilities at the old Westgate treatment plant to divert flows from its service area to the Alexandria treatment plant;

Expansion and upgrading of the District of Columbia Water and Sewer Authority's treatment plant at Blue Plains to 370 MGD; and

Construction of the UOSA plant and eliminating the discharge from the five small County facilities.

CURRENT PROJECT DESCRIPTIONS

RENEWALS/ADDITIONS

1. **Noman M. Cole, Jr. Pollution Control Plant Construction.** $240,893,000 for the feasibility study, design and construction to expand the plant to 67 MGD. This capacity will meet the future demands until 2017 for the Accotink, Pohick, and Long Branch drainage basins and the City of Fairfax, the Town of Vienna and Fort Belvoir. The project also includes funds to improve treatment by reducing nitrogen from the effluent.

2. **Alexandria Wastewater Treatment Plant Improvements.** $214,180,000 for improvements at the Alexandria wastewater treatment plant. Included is renovation to the carbon absorption system, scum collection system, the dechlorination system and the nitrogen removal system to meet the eight part per million ammonia-nitrogen standard. The County has borrowed a total of $90,000,000 from the State Revolving Loan fund to complete this project.

3. **Blue Plains Wastewater Treatment Plant, DCWASA.** $147,969,000 for the County's share of upgrading to 370 MGD at the Blue Plains treatment plant. Blue Plains will be undergoing a major renovation on the next several years in the chemical additions and sludge disposal systems. The schedule of this renovation will cover the next ten years.

4. **Sanitary Sewer Rehabilitation Program.** This is a continuing project for the replacement, repair, and rehabilitation of sewer lines.

5. **Sewer Metering Projects.** This is a continuing project for the rehabilitation and installation of facilities to measure sewage flows. These facilities permit billing for actual flows as opposed to estimated volumes, permit excessive I/I to be located and remedied, and provide flow data that is required by the State Water Control Board and the EPA.

6. **Sewer System Improvement.** This is a continuing project for the systematic improvements to the sewer collection system and the wastewater treatment plant.

7. **Pumping Station Improvements.** This is a continuing project for replacement and necessary improvements to the system's 61 pumping stations. These improvements do not increase capacity or scope and are related to normal wear and tear, and provide odor control equipment to mitigate odors.

8. **Sewer Extension Projects.** This is a continuing project to complete sewer extension projects within the sewer service area of the County that are experiencing chronic septic system failures.

9. **Upper Occoquan Sewage Authority (UOSA) Expansion to 54 MGD.** $391,694,000 to expand the UOSA Regional Plant to 54 million gallons per day thereby increasing the County's share at this facility to 27.6 MGD.

10. **Arlington Wastewater Treatment Plant Upgrade to 40 MGD.** $32,687,000 for the Fairfax County share of the plant upgrade costs. This project is the result of a new Interjurisdictional Sewer Service Agreement which requires funding from participating jurisdictions, on the basis of their share of sewerage capacity and to meet the one part per million ammonia-nitrogen discharge standard.

11. **Sewer Relocation.** $2,063,000 for the design and construction to relocate and repair sewers and manholes due to construction by VDOT and the County.

12. **Rocky Run Pump Station Rehabilitation:** $4,336,000 to enlarge the current pumping station to handle the increase wastewater flow in the Rocky Run watershed. The current pumping station has reached full capacity.

PROJECT COST SUMMARIES
SANITARY SEWERS
($000's)

Project Title/ Project Number	Source of Funds	Anticipated to be Expended Thru FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Total FY2006-FY2010	Total FY2011-FY2015	Total Project Estimate
1. Noman M. Cole, Jr. Pollution Control Plant Construction / N00322, N00321	SR	***215,665***	***1,000***		***24,228***			25,228		240,893
2. Alexandria Wastewater Treatment Plant Improvements / I00904	SR	***185,511***	***5,245***	***4,276***	***9,298***	***7,862***	***1,988***	28,669		214,180
3. Blue Plains Wastewater Treatment Plant, DCWASA / G00901, G00902	SR	***106,598***	***12,517***	***11,064***	***7,169***	***3,118***	***1,103***	34,971	6,400	147,969
4. Sanitary Sewer Rehabilitation Program / X00905, L001117, I00905	SR	***C***	***8,750***	***5,000***	***5,000***	***6,000***	***6,000***	30,750	15,000	45,750
5. Sewer Metering Projects / X00445	SR	***C***		***50***	***50***	***50***	***50***	200	150	350
6. Sewer System Improvements / X00906, X00910	SR	***C***	***10,496***	***3,100***	***1,050***	***3,180***	***3,189***	21,015	9,000	30,015
7. Pumping Station Improvements / I00351	SR	***C***	***3,700***	***1,000***	***1,500***	***2,000***	***2,000***	10,200	3,000	13,200
8. Sewer Extension Projects	SR	***C***		***3,000***	***3,000***	***2,000***	***2,000***	10,000	3,000	13,000
9. Upper Occoquan Sewage Authority (UOSA) Expansion to 54 MGD	SR	***231,594***	***16,010***	***16,010***	***16,010***	***16,010***	***16,010***	80,050	80,050	391,694
10. Arlington Wastewater Treatment Plant Upgrade to 40 MGD / G00903	SR	***16,387***	***4,100***	***6,100***	***6,100***			16,300		32,687
11. Sewer Relocation / X00930	SR	***1,563***		***500***				500		2,063
12. Rocky Run Pump Station Rehabilitation / T00124	SR	***4,336***						0		4,336
TOTAL		$761,654	$61,818	$50,100	$73,405	$40,220	$32,340	$257,883	$116,600	$1,136,137

Key: Stage of Development

- Feasibility Study or Design
- Land Acquisition
- Construction

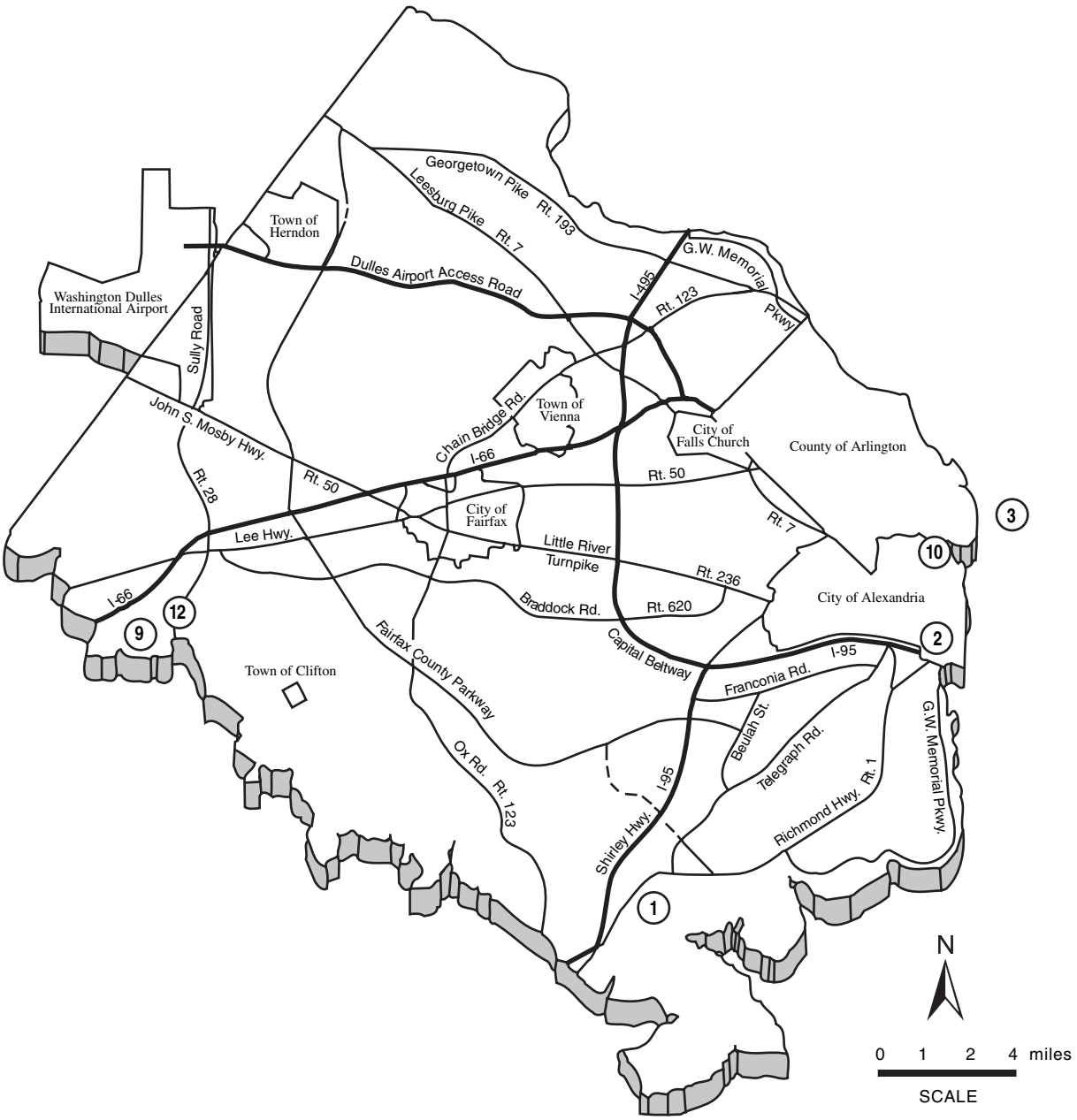
Notes:

Numbers in bold italics represent funded amounts.
A "C" in the Authorized or Expended Column denotes a Continuing project.

Key: Source of Funds

B	Bonds
G	General Fund
S	State
F	Federal
X	Other
U	Undetermined
SR	Sewer Revenues

Sanitary Sewers
Location of CIP Projects



1. Noman M. Cole, Jr. Pollution Control Plant Construction
2. Alexandria Wastewater Treatment Plant Improvements
3. Blue Plains Wastewater Treatment Plant (located at 5000 Overlook Avenue SW, Washington, D.C. 20032)
9. Upper Occoquan Sewage Authority Expansion
10. Arlington Wastewater Treatment Plant Upgrade
12. Rocky Run Pump Station Rehabilitation

Note: Map numbers correspond to the project descriptions in the text and on the summary tables. Only CIP projects with selected fixed sites are shown on the map.